2023第十一届中国指挥控制大会

特邀专题论坛简介

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| **特邀专题名称**  低可探测目标智能信息处理技术 |
| **召集人的姓名、职称、单位和邮箱**  邓宸伟、教授、北京理工大学、cwdeng@bit.edu.cn |
| **特邀专题简介（背景、目的、意见和内容）**  如何全面、准确感知目标状态并对目标信息进行有效处理，实现目标探测的无人化、自主化、智能化，对国家安全、经济社会发展等具有重要意义。但对于伪装、遮蔽等博弈对抗场景，目标呈现低可观测特性，传统探测体制与方法受到严峻挑战。近年来，随着研究人员对不同维度信息感知机理的探索以及深度学习、压缩感知、计算成像等信息处理前沿技术的深入研究，以微光成像、红外超灵敏、仿生偏振、时-空-谱联合等为代表的一系列新兴探测技术不断发展，通过设计稳健多源信息感知系统、构建高效智能信息处理架构与模型，可有效提升探测装备对复杂场景的适应能力，具备良好的发展前景与应用优势。为了促进学术交流和技术创新，推动先进探测体制与信息处理理论、技术及应用的发展，提高目标探测与识别的智能化水平，本特邀专题邀请与“低可探测目标智能信息处理技术”相关主题的原创论文，包括但不限于以下方向的创新思想、概念、发现以及应用。   * 计算光学成像技术 * 微光成像与探测技术 * 红外成像与探测技术 * 高光谱、多光谱、偏振成像与探测技术 * 先进雷达探测、成像与解译技术 * 多源/多模态信息融合、协同探测技术 * 智能传感与实时探测技术 * 复杂场景目标检测、识别及跟踪技术 * 异源样本利用与学习 |

**C2-China 2022**

**Invited Session Summary**

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| **Title of Session**  Intelligent Information Processing for Low-Observable Target Detection |
| **Name, Salutation, Affiliation and Email of Organizers**  Chenwei Deng, Professor, Beijing Institute of Technology, cwdeng@bit.edu.cn |
| **Details of Session (background, purpose, significance and scope)**  How to comprehensively and accurately perceive the target state and effectively process target information to achieve unmanned, autonomous, and intelligent target detection is of great significance to national security, economic development, and so on. However, in adversarial game scenarios such as camouflage and masking, targets exhibit low observability characteristics, which poses serious challenges to traditional detection systems and methods. In recent years, with the exploration of different dimensional information perception mechanisms by researchers and in-depth research on cutting-edge information processing technologies such as deep learning, compressive sensing, and computational imaging, a series of emerging detection technologies represented by low-light imaging, infrared hyper-sensitivity, bionic polarization, and space-time-spectral joint detection are continuously developing. By designing robust multi-source information perception systems and constructing efficient intelligent information processing architectures and models, the adaptability of detection equipment to complex scenarios can be effectively improved, and it has good prospects for development and application advantages. In order to promote academic exchange and technological innovation, promote the development of advanced detection systems and information processing theory, technology, and applications, and improve the intelligence level of target detection and recognition, this special issue invites original research papers related to "Intelligent Information Processing Technology for Low-Observable Target Detection," including but not limited to innovative ideas, concepts, discoveries, and applications in the following directions.  · Computational optical imaging technology  · Low-light imaging and detection technology  · Infrared imaging and detection technology  · Hyperspectral, multispectral, polarimetric imaging and detection technology  · Advanced radar detection, imaging and interpretation technology  · Multi source/ modal information fusion, collaborative detection technology  · Intelligent sensing and real-time detection technology  · Complex scene target detection, recognition and tracking technology  · Heterogeneous Sample Utilization and Learning |